

December 18, 1889.—W. T. Blandford, LL.D., F.R.S.,
President, in the Chair.

The following communication was read:—

“On the Occurrence of the Genus *Girvanella*, and remarks on Oolitic Structure.” By E. Wethered, Esq., F.G.S.

The Author referred to his previous work, wherein he had shown that *Girvanella* is not confined to Silurian rocks, and that as a rock-forming organism it is more important than was supposed, occurring in the Gloucestershire Pea-grit, and also in the Coralline Oolite of Weymouth. He now dealt more in detail with its occurrence (1) in the *Carboniferous Oolitic Limestone*; and (2) in the *Jurassic Oolites*.

In the Carboniferous Limestone of the Avon valley, oolitic limestone occurs on four horizons, in three of which the Oolites rest on dolomite. In none of these three cases are there signs of *Girvanella*. From beds partly Oolitic, and not resting on dolomite, he has been able to determine two new species. The Oolite not associated with dolomite is less crystalline, and the original structure is better preserved.

In referring to *G. pisolitica*, he discussed whether *Girvanella* is most allied to the ‘Challenger’ Foraminifer, *Hyperammina vagans*, or to *Syringammina fragilissima*. Traces of the organism occur in the *Clypeus*-grit, but none are quoted from beds of the Great Oolite, nor from the Portland Oolite. The Author had already shown that the pisolites in the Coralline Oolite of Weymouth were not concretions, but forms of *Girvanella*. Excluding these, he showed that the spherules are of four types, of which one is the ordinary oolitic granule, while each of the others suggests the presence of *Girvanella*.

The characters of the genus, as seen under the microscope, were indicated, and four new species were described.

MISCELLANEOUS.

Note on a Young Specimen of Zoarces viviparus.

By ERNEST W. L. HOLT, Marine Laboratory, St. Andrews.

ON the 4th Jan. a female viviparous blenny extruded between forty and fifty young in the tank-room. Such of the young as were examined at the time measured, within a narrow margin, 2 inches. On the 25th Jan. several were measured, but, owing probably to the meagreness of the food-supply, little or no increase of growth was observable, the length varying from 2 to $2\frac{1}{2}$ inches. To this, however, there were two exceptions. One measured $1\frac{1}{2}$ inch, the other only $1\frac{1}{4}$ inch; the former appears normal in every respect except size, the latter is darker than the rest and exhibits a downward bend of the notochord about $\frac{1}{2}$ inch from its posterior end. The

yolk-sac has disappeared, though the animal is shorter than a larval form two months before extrusion. Indeed, it is likely that the yolk was absorbed before extrusion, otherwise it would not have escaped attention so long.

In examining a number of pregnant females this winter, I have been struck with the frequent occurrence in the earlier stages of one or more deformed embryos. The deformity appears confined to the caudal region, which is bent, or even spirally twisted. Ryder * and others have shown that in some normal oviparous fish the tail of the embryo is affected in a similar way by unfavourable conditions of temperature. But it does not appear that any so-affected embryos hatched.

Here it is evident that the deformity, however caused, has had no effect on the embryo beyond retarding its growth. The little creature has the ordinary proportions of a larval form of the same length, and appears active and healthy, feeding greedily on Copepods.

The young blennies at this age lie quietly at the bottom of the vessel in which they are confined, ever and anon making a dart at a passing Copepod. They rarely rise into midwater, though Copepods are much more abundant near the surface than at the bottom.

On the Relationship of the Annelida und Mollusca.
By M. A. GIARD.

In the Report on the great prize in the physical sciences published in the 'Comptes Rendus' of the 30th December, 1889 (p. 1055), it is said:—"What especially merits attention in the memoir of M. Roule is the place which he assigns to the Annelida in the animal series. *He makes them near relatives of the Mollusca.*"

With reference to this passage M. Giard remarks that long before both Roule and Hatschek he expressed the same opinion. In 1876, at the close of a note upon the development of *Salmacina Dysteri*, Huxl., he wrote as follows †:—

"*General results.*—The formation of the organs of sense independently of the nervous system, and before the completion of that system, the presence of ectodermic respiratory organs, the late origin of the circulatory apparatus, are so many characters approximating the embryo of *Salmacina* to that of the Mollusca. The divergence between the Mollusca and the Annelida only commences after the *Trochosphæra*-stage, and even after this stage the morphological agreements and histological resemblances between the two types are still very numerous. *The relationship of the Mollusca and the Annelida is certainly nearer than that of the latter to the Arthropoda*; the existence of metameres in the Arthropoda and the Annelida has

* 'Report of Commissioner U.S. Fish and Fisheries Commission,' 1885, p. 532.

† 'Comptes Rendus,' January 24, 1876.